

Effects of Unregulated Digitalization and the Fourth Industrial Revolution on Health and Democracy

A Call for Using Technology with Discernment



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I. Introduction

We are witnessing the so-called Fourth Industrial Revolution, the digital transformation of all areas of life and production. Digitalization is a hype, an ideology and a guarantee for material profit and power that is not being questioned. It is sold to the public and political representatives via a progress narrative developed by the IT and telecom industry as well as other stakeholders with an interest in the Fourth Industrial Revolution. It is being said that if we don't welcome everything that is technologically feasible and don't digitize *every* aspect of our lives and economy, we are going to get left behind economically and will become outcasts socially. This carefully crafted narrative plays with existential angst and fear of exclusion.

Meanwhile, a sober analysis of the Fourth Industrial Revolution or Industry 4.0 shows that, in reality, people are getting left behind *because* of unregulated digitalization. From modern-day slaves and child workers mining the raw materials for end products under inhumane conditions in different parts of the world to detrimental physical and mental health effects of certain technological products, the increasing erosion of the right to privacy and other human rights, the flourishing of illegitimate data mining and biometric surveillance, national security concerns related to the backgrounds of involved tech corporations as well as the projected replacement of parts of the human work force by machines and threats posed by the Super Artificial Intelligence arms race, negative effects are being overshadowed by the shiny marketing and frenzied narratives of a trillion-dollar industry as well as ideologically invested interest groups such as the World Economic Forum (WEF). The destructive potential of the Industry 4.0 for the environment and the ecosystem as well as its massive wastage of energy are likewise being widely ignored. However, local grassroots campaigns, renowned scientists and physicians as well as human rights organizations have been increasingly successful in raising awareness about the above mentioned aspects of the digital transformation hype that warrant acute public attention.

The wireless industry that is trying to impose its vision of digitalization, in particular, has faced effective opposition by local communities subjected to the industry's blanket radiation. A variety of places – including suburbs Silicon Valley's IT moguls themselves call home – and cities such as Brussels or Geneva have successfully blocked the installation of the industry's newest product – 5G – due to extensive health concerns. 5G uses different waves (millimeter) on top of the existing ones (microwaves) as well as significantly higher frequencies and requires millions of new masts to be installed in residential areas if widely implemented.

In order to counter local opposition to its products, the wireless industry and its political affiliates on different sides of the political spectrum have made attempts to seize full control over the digitalization process by centralizing decision-making and thereby taking away the voices of communities that are directly affected.

In the United States, for instance, the wireless industry is behind legislation in at least 20 states and at the federal level. In 2017, California Gov. Jerry Brown's vetoed **a measure "that would have gutted local control and put the interests of the wireless industry over those of California residents.** A broad coalition of cities, counties, environmental, labor and consumer advocates opposed SB 649 by Sen. Ben Hueso (D-San Diego). The bill would have given wireless providers unfettered ability to install bulky cellular equipment on any street light or traffic signal as well as public libraries and other public buildings without permission from local governments, input from the public or fair compensation for city and county residents." (California State Association of Counties 2017: 1)

A current example for the attempt to monopolize decision-making and disempower the local level is the **local authority preemption bill for broadband deployment projects (H.R. 3557) that is being advanced** by House Republicans. So-called state preemption laws are designed to prevent local governments and communities from passing or enforcing legislation related to a particular subject matter. With regards to H.R. 3557, the U.S. National Association of Counties (2023) explains:

H.R. 3557 would enact new restrictions on a variety of state and local land use and zoning authorities pertaining to the deployment of telecommunications infrastructure, including both wireless deployment and wireline deployment [...] The following provisions are of concern for counties and are included in H.R. 3557:

- Preemption of state and local zoning authority over the placement of wireless technologies, including towers, equipment, and small cells;
- Elimination of state and local government authority to manage public rights-of-way (ROW) by collecting fair market compensation for their use and management, and limiting ROW fees to "actual, objectively reasonable costs";
- Enactment of shot clock rules and "deemed granted" provisions which place timelines for the review and approval of telecommunications projects; [...]

The National Association of Counties (NACo), alongside local government organization partners the National League of Cities (NLC), the U.S. Conference of Mayors (USCM), and the National Association of Telecommunications Officers and Advisors (NATOA) urged the House Subcommittee on Communications and Technology to reject legislation that would infringe upon local authorities [...] Counties strongly urge Congress to preserve all local land use and zoning authorities throughout the stages of deployment of broadband infrastructure projects [...] preemption of local decision-making authority would only subvert the intentions of historic federally-funded broadband programs by reducing the ability of counties to ensure deployment projects will meet all community needs.“

H.R. 3557 is a direct attack on the rights of local political institutions and the principle of subsidiarity which holds that political issues should be dealt with as locally as possible. It also threatens the voice and health of communities. In practice, the bill could, for instance, disempower towns, cities, mayors and counties from preventing the installation of 5G towers and networks in residential areas right in front of people's homes. If passed, H.R. 3557 – as an example of a wider trend – would take away decision-making powers from the local level, instead handing it to federal government agencies compromised by industry and other special interests.

The **corruption and infiltration of federal agencies and committees by the industries they are meant to regulate is well-documented**. A publication by Harvard University, for example, shows how the Federal Communications Commission (FCC) is dominated by the industries it presumably oversees (cf. Alster 2015). The Harvard document states:

“The FCC sits at the core of a network that has allowed powerful moneyed interests with limitless access a variety of ways to shape its policies, often at the expense of fundamental public interests. As a result, consumer safety, health, and privacy, along with consumer wallets, have all been overlooked, sacrificed, or raided due to unchecked industry influence. [...] Most insidious of all, the wireless industry has been allowed to grow unchecked and virtually unregulated, with fundamental questions on public health impact routinely ignored.

Industry controls the FCC through a soup-to-nuts stranglehold that extends from its well-placed campaign spending in Congress through its control of the FCC's Congressional oversight committees to its persistent agency lobbying. [...]

Industry control, in the case of wireless health issues, extends beyond Congress and regulators to basic scientific research. And in an obvious echo of the hardball tactics of the tobacco industry, the wireless industry has backed up its economic and political power by stonewalling on public relations and bullying potential threats into submission with its huge standing army of lawyers. In this way, a coddled wireless industry intimidated and silenced the City of San Francisco, while running roughshod over local opponents of its expansionary infrastructure.

On a personal level, the entire system is greased by the free flow of executive leadership between the FCC and the industries it presumably oversees. Currently presiding over the FCC is Tom Wheeler, a man who has led the two most powerful industry lobbying groups: CTIA and NCTA. It is Wheeler who once supervised a \$25 million industry-funded research effort on wireless health effects. But when handpicked research leader George Carlo concluded that wireless radiation did raise the risk of brain tumors, Wheeler's CTIA allegedly rushed to muffle the message. — 'You do the science. I'll take care of the politics,' Carlo recalls Wheeler saying." (Alster 2015: 4–5)

While some technological innovations might benefit societies, others don't. Societies do not have to and should not implement everything that is technologically feasible, especially when negative effects are significant. The decision whether a technology is used in a certain area or not should not be left to the industry that profits from it or the federal agencies it has corrupted but should be taken by local communities themselves as well as their most immediate and accessible political representatives. At the same time, it needs to be ensured that technologies that *are* being used do not contribute to human exploitation, destruction of ecosystems and authoritarian designs.

Purpose of this document

The purpose of this document is to provide an overview of an immediate threat to health and human rights as well as ecosystems that has been allowed to get out of control because it has been ignored. The aim is to empower the reader to take informed decisions when interacting with specific technologies and the effects of the Fourth Industrial Revolution. The purpose of this brief is further to recommend actions that are required to be taken by leaders, decision-makers, environmental and human rights organizations, schools, health care providers and the public to implement a counter-vision of healthy communication technologies and a thriving economy free from exploitation. The document also encourages people to block the ongoing centralization and monopolization of political decision-making, to be adamant when it comes to the principle of subsidiarity and to take responsibility for their own communities as well as consumer behavior.

I. Effects of Unregulated Digital Transformation

A. On Human, Animal and Environmental Health

Issue 1: Wireless Technology

When it comes to human health, one of the most harmful and worrisome aspects of an unregulated digital transformation is the **steady increase of blanket radiation emitted by billions of wireless technological devices**. With plans for ever more wireless end products connected to the Internet of Things (including TVs, coffee machines or even saucepans and children's toys) and plans for the installation of millions of new 5G small cell towers in residential areas, radiation and electrosmog will increase to unprecedented levels.

Electrosmog in general is the totality of the electric fields, magnetic fields, and electromagnetic radiation that is present 24/7 from all electrical and electronic devices, electric wires, power lines, and wireless devices and antennas. With wired communication, information is transmitted via the wires, and the electromagnetic fields (EMFs) and radiation are unintentional. Proper engineering can reduce these unwanted fields and radiation to a minimum.

By contrast, with wireless communication, the radiation is the product. Radiation substitutes for wires in transmitting information. Wireless *means* radiation. Mobile devices operate in the microwave spectrum, with the result that the entire planet is now subjected to microwave radiation that is millions to billions of times stronger than the radiation from the sun and stars with which life evolved (cf. Presman 1970: 31).

Life is based not only on chemistry but more fundamentally on electricity (cf. Becker 1985; Sulman 1980). The unimpeded flow of electrons is essential to the functioning of our nerves, heart, and metabolism (cf. Sulman 1980). Interference with these electric currents causes neurological diseases, heart disease, metabolic diseases such as diabetes, and cancer (cf. Firstenberg 2020). Organisms that have a very high metabolism, such as bees and other insects, are being decimated (cf. Cucurachi et al. 2013; Till 2020). Thousands of studies document the devastating effects of wireless radiation on mammals, birds, insects, amphibians, and forests (cf. Levitt et al. 2021).

The damage done to our health and our world by the ever-increasing number of wireless devices and their infrastructure is caused not only by the microwave carrier frequencies, but also by the low-frequency modulation and pulsations that carry the

transmitted information. “Thus, modulation can be considered as information content embedded in the higher frequency carrier wave that may have health consequences beyond any effect from the carrier wave directly” (cf. Blackman 2007).

This knowledge has been obscured by the subversion of scientific organizations and regulating agencies through industry and other stakeholders. The scientific debate itself has been artificially paralyzed with two teams of scientists presenting opposing conclusions. The side that insists that the radiation emitted from wireless technology is safe is closely linked to industry; the other group that explains that the technology is harmful consists mostly of industry-independent scientists. Government agencies – compromised by industry, national interests and the economic growth hype – as well as supra-national entities such as the World Health Organization or World Economic Forum tow the industry line.

Dariusz Leszczynski (2022: 1–2), Professor of Biochemistry and Biotechnology as well as Chief Editor of the specialty 'Radiation and Health' for *Frontiers in Public Health*, explains:

“The evaluations of the same scientific evidence come to different conclusions depending on the scientists performing the analysis. Evaluations of the research conducted by two groups of scientists, forming the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the International Committee on Electromagnetic Safety of the Institute of Electrical and Electronics Engineers (IEEE-ICES) [both prolonged arms of industry], are used to set international safety guidelines. Both ICNIRP and IEEE-ICES claim that scientific evidence shows a lack of harmful health effects. The opinion of ICNIRP is, historically already, recommended by the World Health Organization (WHO) [...] and the majority of the national governments.

However, the evaluation of the same scientific evidence by other teams of scientists including the BioInitiative, the International Committee on Electromagnetic Safety (ICEMS), or the recently established International Commission on Biological Effects of the Electromagnetic fields (ICBE-EMFs) [industry-independent organizations] leads to conclusions that the scientific evidence shows definite harm to health.”

Since the more independent groups are not being heard, they have taken to courts with their evidence. Leszczynski (2022: 2) writes: “Hence, to be heard by the national radiation safety authorities and governments, scientists of these organizations and general public activists have begun to go to courts of law to prove that their interpretation of scientific evidence is correct”.

Leszczynski (2022) continues that the different sides barely ever meet to take a look at the evidence together and to consider input from all sides, except for one time. Back then, they did, in fact, agree on a given potential for harm. Leszczynski (2022: 3) explains:

“There was only one scientific evaluation of RF-EMF studies where the gathered group of scientists represented a full spectrum of diverse scientific opinions on RF-EMF and health, cancer in particular. This diverse group of scientists gathered in May/June 2011 at the Headquarters of the International Agency for Research on Cancer (IARC) in Lyon and following intense debates came up with a recommendation that RF-EMF is a possible human carcinogen. [...] *This evaluation was supported by a large majority of Working Group members.*”

The position represented a compromise. In an article in *Molecular and Clinical Oncology*, Hardell and Nyberg (2020: 1) write: “The evidence has since then been strengthened by further research; thus, RF radiation may now be classified as a human carcinogen, Group 1. In spite of this, microwave radiations are expanding with increasing personal and ambient exposure.” They also explain that “officials rely on the opinions of individuals within the ICNIRP and the Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), most of whom have ties to the industry.” (ibid.)

Frontiers’ Chief Editor on ‘Health and Radiation’, Dariusz Leszczynski (2017: 46–47), points to the problem that the technology in question is “very profitable” and that “a biased evaluation of the science” is used to find “an excuse for [its] unrestricted deployment”. He writes: “Claims that the current safety standards protect all users are not supported by the scientific evidence”. He warns: The “Precautionary Principle should be implemented – it’s not ‘scaremongering’” and “children should be especially protected by precautionary measures” (e.g., by schools using only wired internet). He advises users to be aware of what is going on behind the scenes and “to limit exposure [to wireless devices] whenever possible and feasible”.

An appeal by over 230 renowned scientists lists under health concerns associated with wireless technology an “increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life.” (Environment Health Trust 2017: 1)

Therefore, the radiation-based wireless infrastructure should not be expanded. Blackman and Forge (2019: 11–12) in a document compiled for the European Parliament concede: “Significant concern is emerging over the possible impact on health and safety arising from potentially much higher exposure to radiofrequency electromagnetic radiation arising from 5G. Increased exposure may result not only from the use of much higher frequencies in 5G but also from the potential for the aggregation of different signals, their dynamic nature, and the complex interference effects that may result, especially in dense urban areas.”

Leszczynski (2017: 47) calls for a “**moratorium on 5G**”. Lennart Hardell (medical doctor and Professor at the Department of Oncology, Faculty of Medicine and Health, Örebro University, Sweden) is one of more than 230 renowned scientists from 41 nations—all of whom have published peer-reviewed research on the biological or health effects of radiation – that have signed an Appeal to halt 5G and look carefully at the health effects of wireless radiation in general. Hardell says: “Scientific studies from years ago, along with many new studies, are consistently identifying harmful human health impacts when wireless products are tested properly using conditions that reflect actual exposures. With hazards at those exposures, we are very concerned that the added exposure to 5G radiation could result in tragic, irreversible harm.” (Environmental Health Trust 2017: 1) Co-signatory and award winning scientist Joel Moskowitz (public health researcher and Director of the Center for Community Health, University of California) states: “Peer-reviewed research has documented industry influence on studies of the health impacts of wireless radiation. We are insisting on a moratorium on 5G [...]” (ibid.: 1)

Beatrice Golomb (Professor of Medicine, University of California) calls for the implementation of an alternative to wireless technology in general. She writes: “**Let our focus be on safer, wired and well shielded technology – not more wireless.**” (ibid.: 1) A move towards wired technology in the digital transformation will eventually decide on the quality of life and health of a significant number of people, animals and the ecosystem.

One group that is suffering tremendously consists of people that are highly sensitive to the effects of radiation. In 2018, the French Agency for Food, Environmental and Occupational Health Safety (ANSES) estimated that in Europe alone the prevalence of electromagnetic hypersensitivity (EHS) affects 5% of the general population. In total, it is estimated that 0,65% of the population are restricted in where they can go due to the blanket radiation experienced, especially in urban areas.

The French agency ANSES states that “the complaints (pain, suffering) expressed by [these] people [...] correspond to an experienced reality and these people need to adapt their daily lives to cope with them. The symptoms [...], as well as the psycho-social isolation experienced by some of them, require and justify appropriate care by health and social care providers”. Some scientists believe that this group of people is more sensitive to the overproduction of free radicals caused by certain kinds of radiation with the result of inflammatory diseases (oxidative cell stress). The author Arthur Firstenberg describes his own experiences in the following way:

Leaving No One Behind

"In 1996, when I was living a normal life in Brooklyn, T-Mobile came and put 600 antennas on rooftops throughout New York City and turned them on on November 14. None of them were on the rooftop of my building or any of the nearby buildings. Within 6 days I could not eat, sleep, or breathe. I left town on the morning of the 7th day to save my life. I had to leave my family, my friends, and everything I knew. I had to borrow a car to get the hell out of New York and at least have a vehicle to sleep in.

We put a small classified ad in a free weekly newspaper to find out how widespread the problem was. Hundreds of people answered the ad. All had woken up on about November 15, 1996 thinking they were having a stroke, a heart attack or a nervous breakdown. They became the initial members of the Cellular Phone Task Force. The very first man to answer the ad, an airline employee in the Bronx, died of a stroke 5 months later because unlike me he did not get out of New York. I got weekly mortality statistics from the CDC. The introduction of 2G had caused an immediate rise in mortality in each city on the day digital wireless broadcasting began in 1996 or 1997, and killed at least 10,000 people. I hired someone with a spectrum analyzer to go down to my apartment to take measurements. The exposure level that was *lethal* to me and thousands of others was less than 1 microwatt per square meter (less than 0.0001 microwatts per square centimeter), a level that everyone who is in denial today thinks is safe.

There is nowhere on earth I can go today to live a life without pain and participate in society. I cannot travel. I cannot stay in a hotel. I cannot go to a restaurant or a coffee shop. I cannot go to the movies or to a concert. I cannot stand in line at the grocery store or the post office. Why? Because everyone has a mobile phone and it hurts to get anywhere near them. It does not matter whether they are talking or texting or it is on airplane mode or it is turned off as long as the battery is in it. It hurts and it has deprived me of all of the rights and liberties guaranteed to me as an American citizen."

— ARTHUR FIRSTENBERG

Issue 2: Mental Health and Development

Digital technology, if used in the wrong way, can further be deeply harmful to mental health, especially in children and young adults. Limone and Toto (2022: 8) write in their systematic review published in *Frontiers in Psychology*:

“Researchers have documented that digital technology impacts the psychological and emotional outcomes of adolescents. The evidence of this systematic review revealed that the use of digital technology, especially in excess, negatively impacts the psychological and emotional health of adolescents ($p < 0.005$). This is consistent with [...] historical studies.

Researchers have also documented that there are gender differences in the impact digital technology has on the psychological and emotional outcomes of adolescents. The evidence of this systematic review revealed that the use of digital technology impacts girls more negatively than boys, especially as a consequence of the use of social media ($p < 0.005$). These findings are consistent with previous research, which found similar trends (Montag and Elhai, 2020; Lehtimäki et al., 2021; Marciano et al., 2021). [...]

Moreover, the results of this study indicate that adolescents experienced adverse mental health effects, including feelings of social isolation, depression, anxiety, and increases in maladaptive behavior as a result of increased digital technology usage during the COVID-19 pandemic (Limone and Toto, 2021).“

It’s not the usage of technology per se that contributes to mental harm but its excessive and/or wrong application. A study published in *JAMA Psychiatry*, for instance, concludes that “[a]dolescents who spend more than 3 hours per day on social media may be at heightened risk for mental health problem.” (Riehm et al. 2019: 1)

However, digital technological devices and the apps or social media networks accessed through them are explicitly designed to make people addicted, resulting in excessive use, if not consciously controlled. Nancy De Angelis (Director of Behavioral Health at Jefferson Health) gives an example: “Social media platforms drive surges of dopamine to the brain to keep consumers coming back over and over again. The shares, likes and comments on these platforms trigger the brain’s reward center, resulting in a high similar to the one people feel when gambling or using drugs.” (Jefferson Health 2022: 1) This can result in addictive behavior. The addiction in turn causes excessive usage which can lead to both severe mental and physical health problems as well as social isolation.

A report by the Swedish Karolinska Institute also points at developmental issues and makes a strong case against the digitalization of schools. The report was used by the Swedish government to correct some of its excessively pro-digitalization policies. The authors – Lisa Thorell (Professor of Developmental Psychology), Torkel Klingberg (Professor of Cognitive Neuroscience), Agneta Herlitz (Professor of Psychology), Andreas Olsson (Professor of Psychology) and Ulrika Ådén (medical doctor and Professor for Neonatology) – write that research shows “that the digitalization of schools, to the extent that has already taken place in Sweden, brings with it many disadvantages and that increased digitalization could have other negative consequences.” (Thorell et al. 2023: 3) The digitalization of schools can, for instance, have major negative impacts on the knowledge acquisition of students (ibid.: 2). The authors explain:

“Digital tools contain many distractions that hinder concentration and working memory, which in turn impairs learning (Klingberg, 2023). For example, one study found that students who had their computers plugged in during a lecture spent up to 40 percent of class time on irrelevant, unrelated topics (Kraushaar & Novak, 2010). Another study looked at the effect of half the students having their laptops open during a lecture while the other half had to keep them closed. After the lecture, they had to answer questions about the content. The students who opened their laptops performed 30 percent worse than their peers (Hembrooke & Gay, 2003). These studies involved college students, and the negative impact of computers on elementary and high school students is likely to be greater because younger children have poorer executive functioning (e.g., impulse control). For primary school students, the OECD has published a report showing that high levels of computer use in schools are clearly negatively correlated with PISA scores in math and reading (OECD, 2015) [...]

Reading and writing on a screen [further] has a negative impact on reading comprehension. It is more difficult to remember information read or written on a screen than information read in a book (Clinton, 2019; Delgado et al., 2018).” (ibid.: 2–4)

Thorell et al. (2023: 6) also emphasize the importance of small children learning from a human person instead of from a screen:

“When comparing whether a child imitates a real person or a filmed person or recorded voice when learning, research shows that young children have great difficulty understanding what they see on a screen (Yadav et al., 2018). At the age of two, children learn and remember half as much from all 2D media as compared to interacting with live humans (Moser et al., 2015). So human interaction is essential for learning at this age. Early screen use is associated with poorer language development (Madigan et al., 2020).

More specifically, research has shown that when children use screens, human interaction is inhibited – children end up in a ‘digital bubble’ (Bochicchio et al., 2022)”.

Issue 3: Deadly and Harmful Raw Material Mining

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The glamorous shop displays and marketing of state of the art technologies are a stark contrast to the children carrying bags of rocks, and miners in narrow manmade tunnels risking permanent lung damage.

Mark Dummett, Business & Human Rights Researcher at Amnesty International

Source: Amnesty International (2016)

Harms for the health of humans, animals and the ecosystem do not only stem from the usage of end products but begin with the production process. The Fourth Industrial Revolution and digital transformation cause an excessive demand for raw materials and natural resources. Neither big tech corporations nor other stakeholders invested in the digital transformation nor consumers care where these materials come from, under which conditions and at which costs to humans, animals or the environment they are being mined. In doing so, they turn a blind eye to child labor, human exploitation, animal poisoning and environmental destruction.

“

It is a major paradox of the digital era that some of the world’s richest, most innovative companies are able to market incredibly sophisticated devices without being required to show where they source raw materials for their components.

Emmanuel Umpula, Afreewatch Executive Director

Source: Amnesty International (2016)

A well-reported example is the mining for cobalt in the Democratic Republic of Congo (DRC) where 60% of the world's cobalt originates from. Cobalt is a mineral used in lithium-ion batteries for smart phones, iPhones, laptops, tablets and electric cars by major brands. The Washington Post (2016) writes: " In many ways, the current Silicon Valley gold rush — from mobile devices to driverless cars — is built on the power of lithium-ion batteries."

The Washington Post (2016) also reports:

"The world's soaring demand for cobalt is at times met by workers, including children, who labor in harsh and dangerous conditions. An estimated 100,000 cobalt miners in Congo use hand tools to dig hundreds of feet underground with little oversight and few safety measures, according to workers, government officials and evidence found by The Washington Post during visits to remote mines. Deaths and injuries are common. And the mining activity exposes local communities [and the environment] to levels of toxic metals that appear to be linked to ailments that include breathing problems and birth defects, health officials say. [...]"

[D]octors at the University of Lubumbashi already know miners and residents are exposed to metals at levels many times higher than what is considered safe. One of their studies found residents who live near mines or smelters in southern Congo had urinary concentrations of cobalt that were 43 times as high as that of a control group, lead levels five times as high, and cadmium and uranium levels four times as high. The levels were even higher in children. Another study, published earlier this year, found elevated levels of metals in the mining region's fish. A study of soil samples around mine-heavy Lubumbashi concluded the area was ,among the ten most polluted areas in the world."

Tens of thousands of miners or diggers (as they call themselves) are children. According to UNICEF, in the country's south alone, 40,000 boys and girls work in the mining industry. Some are as young as seven (Amnesty International 2018). The human rights organization explains that mining "has both detrimental physical and mental effects on children, which is why it is considered to be one of the worst forms of child labor" (Amnesty International 2016).

The cobalt in the DRC usually goes to China's Zhejiang Huayou Cobalt, one of the world's biggest cobalt producers. Huayou supplies battery makers which in turn are in business with corporations such as Apple, Amazon, Samsung, LG or major automobile manufacturers.

B. On Democracy

The Fourth Industrial Revolution and the digital transformation present a significant challenge to democracy and human rights. Totalitarian mechanisms such as China's Social Credit System are made possible by digital surveillance technologies and Artificial Intelligence (AI) – that might eventually slip out of human control. Without a critical analysis and correction of course, the digital transformation and Fourth Industrial Revolution are moving us into that dire direction where every aspect of a person's life is harvested, analyzed and traded as a product by powerful private entities and governments. People's privacy is being studied, monetized and sold.

In the end, some political and corporate actors regard individuals as *hackable animals*, a term coined by World Economic Forum ideologue Yuval Harari. This means that some private entities and governments believe that they can cause people to do anything (whether in the economic or political realm) by manipulating them based on psychographic messaging and other tools. Any form of private data is an asset for them to build a 360 degree view of a person in what has been termed the surveillance economy.

"They invade our private lives through surveillance, they extract from our lives, rendering what they extract as behavioral data and then they claim those behavioral data as their private property."

Shoshana Zuboff
(Professor Emeritus, Harvard University)

Digital technologies currently in use already feed the surveillance economy to a certain degree (e.g., carrying a smart phone is like carrying a tracking device, WhatsApp gives Meta extensive insight into a user's social and personal life). However, advanced real-time surveillance and data mining, as is happening in China, depend on two additional instruments: digital ID and 5G.

Digital ID functions as a single point of reference, consolidating all data relating to an individual (including a complete movement profile, residence, relationships, health status, medications, income, buying habits, hobbies, likes and dislikes, comments on the internet and much more). Digital ID poses one of the gravest risks to human rights and democracy that we face today for several reasons. For one, the data connected to an individual's digital ID – their recorded behavior in all areas of life – enables a control regime such as China's AI-driven social credit system to have insight into all details of your life. In China, this insight is used to assign a score to individuals and update it in real-time. This score in turn is used to discriminate based on given

presets by those in power. Holding the wrong views or saying the wrong things will downgrade your score. Those in power decide what score is needed for us to be allowed to do things like visit certain places and to have access to public transport, our own bank accounts or the internet. The score of parents automatically impacts what their children are allowed to do as well. In addition, a digital single point of reference for all our data enables hackers and other bad faith actors (which can include governments, political opponents, crime networks or bullies) to gain access to all our information, to use it against us (to blackmail, to steal etc.) and sell it as they wish. Digital databases with sensitive information have been repeatedly compromised and cannot be reliably protected in the digital age. With faster data transmission, security becomes even less pronounced.

While digital ID is used to legitimize the digital collection and archiving of all information on an individual under a personal identifier for access by different actors, 5G works as the enabling technology for AI-driven, real-time surveillance to feed the database. Kroll (2020: 21–22) explains how 5G is the technological prerequisite for automatic, wide-scale and real-time automated biometric facial recognition and for pinpointing people's exact locations at all times with a higher accuracy than GPS. The latter is achieved through the close proximity in which 5G masts are being placed. With AI-driven, real-time biometric facial recognition and exact locating, the previous possibility of anonymously immersing yourself in the crowd no longer exists (cf. *ibid.*). In China, this goes so far that surveillance cameras and AI-driven biometric profiling, for example, allow the system to register every item bought in a shop by a customer and to adjust the individual's social credit score accordingly in real-time.

Always knowing where everyone is, what they are thinking and what they are doing has been an aim and instrument of authoritarian as well as dictatorial regimes for ages to control populations, suppress opposition, prolong injustice and prevent social change. The right to privacy (United States) or the related concept of the right to informational self-determination (Germany) are therefore essential to functioning republics, democratic societies and the protection of essential human rights.

Seubert and Becker (2021: 1) write: “[T]he constitutional protection of privacy rights is not only of individual relevance but also of major democratic significance: it protects the integrity of the communication structures that underpin democratic self-determination. The debate on privacy protection, however, often lacks a democratic understanding of privacy and misses its public value.”

The right to privacy or informational self-determination is essential for multiple reasons. For one, as soon as there is uncertainty in a person as to whether dissenting or deviant behavior is registered at all times and stored permanently as information, this individual might try not to draw attention to him- or herself and might avoid such behavior to escape perceived or actual negative consequences. This can prevent this person from exerting his or her free speech, from participating in a meeting or citizens' initiative. At this point, the person can no longer freely exercise his or her fundamental rights due to the fear of repercussions. This in turn threatens the very fabric of democracy. In addition, the excessive mining of private data on a person, makes that individual much more vulnerable to being manipulated, blackmailed or coerced. Stealing data and information also can give the perpetrator an advantage over his or her political opponent(s).

Privacy International (2012: 9) warns:

"A free media is considered an integral component of a new, developing, or established democracy. Free speech is therefore a political right. But today we seem to have forgotten the chilling effect that surveillance plays. Yes, of course, we may point to history to understand this point: the Red Scares, the blacklists and use of informants; the Gestapo techniques; Stalin's spying on friends and competitors and midnight raids; FBI files on politicians and leaders, and Watergate; or the Stasi's network of spies and neighbours. Following from these abuses, safeguards were established to prevent surveillance from corroding our democracies. Privacy was established as a political right. For instance, U.S. constitutional jurisprudence on the right to privacy emerges from the political right to organise and to petition the government and to espouse your beliefs without having to disclose your name, dating back to a case where the State of Alabama compelled the National Association for the Advancement of Colored People (NAACP) to disclose its membership list. [...]"

[However, v]ast new datastores have been established in recent years. Governments and companies now run databases that keep information on our financial transactions, medical status, and travel habits; and they share and mine this information on wide-

" The more someone knows about us, the more they can influence us. We can wield democratic power only if our privacy is protected. [...] If we are going to live in a democracy, the bulk of power needs to be with the people. And whoever has the data has the power. [...] Institutions in the digital age have hoarded too much power, but we can reclaim the data that sustains it. Privacy is power, and we must take it back."

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spread bases. As surveillance again takes place often without the knowledge of the individual under surveillance, there is no way to contest if the Government seeks access to the medical information of critics, or telephone records of Opposition members, critics, or journalists. In countries where Government is the custodian of this information in the first place, unobstructed access to personal information is now possible. [...]

We are forgetting the important role that privacy plays in our political systems, and how political surveillance is corrosive to a democracy. I can foresee two outcomes if we continue to deploy political surveillance without reflecting on the consequences. First, we may face social exclusion as people are more easily identified through their political interests. Discrimination may follow as individuals are identified as members of political groups through their donations, linked to their home addresses, their CVs and social networking profiles. The second outcome is political stagnation [...] those in power will retain their position, enabled through surveillance of their opponents and critics.

We have long built constitutional and human rights into our political systems to prevent abuse by the executive. Free speech is one such safeguard. We cannot forget that privacy is another. This is why democracies have traditionally held secret ballots, protected anonymous petitioners, and created safeguards like the 'Wilson doctrine'. We vowed that we would not let surveillance inhibit political autonomy, development and expression. We must repeat this vow, and it must be updated and enhanced to counter modern political surveillance techniques."

If we want to keep living in a democracy in the digital age, we need to prevent the wide implementation of digital ID, 5G, data mining and the systematic violation of the human right to privacy.

III. Policy Recommendations

A. Radiation-based civil wireless technology must be phased out and replaced.

At present there are about 15 billion wireless devices and 6 million masts that subject people, animals and the environment to harmful microwave and millimeter wave radiation. International scientists and medical doctors warn of an “increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life.” (Environmental Health Trust 2017: 1)

Plans to further expand the radiation are irresponsible and based on a gold rush-like hype. If we truly value people over profits, **radiation-based wireless technology needs to be phased out and replaced by more secure and wired solutions.**

In a first step, people at home, workplaces, schools, care homes, hospitals, churches and hotels should be encouraged to use wired solutions. The installation of wired options in private homes, workplaces, schools, care homes, hotels and businesses should be subsidized and broadly advertised. Religious, political and community leaders should encourage congregations and constituencies to get rid of wireless technology for their own and the ecosystem’s sake.

Towers emitting microwave and/or millimeter wave radiation should be systematically taken down, starting with those close to kindergardens, schools, care homes, hospitals and in residential areas as well as those in areas in which multiple providers each, unnecessarily, operate their own towers. The installation of 5G masts must be halted and existing 5G towers must be taken down.

Schools must remove mobile phone masts and WiFi routers. Schools are among the most intensely irradiated environments in society today, consequently the worst and unhealthiest places for our children to spend their growing years. Every classroom has one or more WiFi routers in it, together with dozens of children sitting in close proximity to one another every day all day, all of them with cell phones and wireless computers, irradiating one another at all times. Schools are earning money renting their properties to telecommunications companies for the installation of mobile phone masts.

All masts and all WiFi antennas must be removed from all school properties, and children must be mandated to switch off cell phones at school.

Churches and other religious buildings need to likewise remove antennas and WiFi networks from their premises. Churches have become a prime target for telecommunications companies when it comes to the installation of antennas, often hidden inside false chimneys or fake bell towers. These antennas earn a lot of money for churches but turn them into hazardous environments for their worshippers and visitors.

Further, antennas inside national parks, wildlife preserves and protected nature areas should be taken down immediately. A 2015 report to UNESCO detailed the devastating impact of communication antennas inside a World Heritage Site in Australia. When a telecommunication tower atop Mount Nardi began to convert its antennas from analog (2G) to digital (3G) in 2002, a steady increase in species diversity suddenly reversed and became a steady *decrease* in species diversity. In 2002 insect populations and diversity began to decline. In 2009, enhanced 3G was installed, along with an additional 150 pay television channels. 27 bird species promptly left the mountain, and insect volumes and species dropped dramatically. In late 2012 and early 2013 4G was installed, and 49 more bird species promptly left the mountain. Broomhall (2017: 4) writes:

“From this time, all locally known bat species became scarce, 4 common species of cicada almost disappeared, as well as the once enormous, varied population of moths & butterfly species. Frogs and tadpole populations were drastically reduced; the massive volumes and diverse species of ant populations became uncommon to rare... [F]rom 70 to 90 % of the wildlife has become rare or has disappeared from the Nightcap National Park within a 2-3 km radius of the Mt. Nardi tower complex”.

Underwater wireless communication in the oceans needs to likewise be prohibited due to the sensitivity of aquatic creatures to all forms of radiation. Along with national parks and nature preserves, the oceans should be absolutely protected from radiation. Governmental, commercial and military interests have been collaborating to create Smart Oceans and build the Internet of Underwater Things. To do this they are building cell towers on the ocean floor, putting relay antennas in the depths of the ocean, and deploying smart ships, smart submarines, and underwater robots. The goal is to enable broadband wireless communication from any point on or in the oceans to anywhere else on the planet, up to and including real-time video streaming from underwater everywhere in every ocean (cf. Firstenberg 2022).

RF radiation is being used in the oceans for short- to medium-range communication, and is destroying ocean life the same way it is destroying land-based life. Acoustic waves are being used for long-range communication, and are deafening fish and ocean mammals with sound as loud as 202 decibels. The fishing industry is also using underwater radar to locate and capture fish with a precision and on a scale that is devastating to ocean life (cf. Weilgart 2018). All underwater wireless communication and radar must be halted.

B. The location, number, and power of civil defense radars must be limited.

The present situation of unlimited power has allowed 3-billion-watt radars such as PAVE PAWS, which has irradiated millions of people on both coasts of the United States for more than four decades (cf. Brodeur 1977).

A five-year investigation into the health and environmental effects of a civil defense radar in Latvia after the end of the Cold War resulted in the decommissioning and removal of that radar. School children in the area—even children who lived 20 kilometers away—had impaired motor function, memory and attention, reduced lung capacity, and elevated white blood cell counts. The entire local population suffered from headaches, sleep disturbances and elevated white blood cells. Human reproduction was affected: 25 percent fewer boys than girls were born during the years the radar operated. Chromosome damage was found in local cows. Nest-boxes near the radar were occupied by extremely low numbers of birds. The average growth rings of trees during the years of the radar's operation were only half as wide as before the radars were constructed, and study of pine cones revealed the trees were aging prematurely. Seedlings in the area grew into deformed plants with reduced reproductive capacity (cf. Brūmelis et al. 1996; Kolodynski and Valda Kolodynska 1996; Balode 1996; Liepa and Balodis 1994; Balodis et al. 1996; Selga and Selga 1996; Magone 1996).

C. Weather radars must be phased out as they do more harm than good.

There are an estimated 1,500 of these extremely powerful installations scattered throughout the world. Each of the 160 NEXRAD radars in the United States has an EIRP (Effective Isotropic Radiated Power) of 32 gigawatts (32 billion watts) (cf. NTIA 2014). These radars are heavily irradiating people and wildlife, and are neither reliable nor essential to weather forecasting (cf. LidarRadar n.d.).

D. The launch of new satellites, especially 5G satellites, must be halted.

The functioning of all living organisms is regulated by their electromagnetic environment, including the magnetic field of the earth, the vertical electric field between earth and ionosphere, the global electric circuit, the Schumann resonances, etc. If the electromagnetic environment of the earth is altered, life on earth is severely threatened.

Both the number of satellites in orbit and the radiation they emit are out of control. Some satellites already have an effective radiated power of 83 million watts. Some are capable of emitting 5,000 individual beams. More than 7,000 satellites are already in orbit, and thousands more are being sent into space by near-daily rocket launches. Not only are they exposing every square meter of land and oceans to their radiation, but they are polluting the global electric circuit, which includes our bodies, with all of their pulsations and modulation patterns. This is degrading life, causing extinctions and forest die-off, which cannot be successfully addressed without halting the radiation in and from space (cf. Firstenberg 2020).

E. Non-ionizing radiation must be regulated by national environmental agencies with no conflicts of interest.

In many countries, radio frequency (RF) radiation from telecommunications facilities and devices is regulated by the same agency that is charged with promoting those facilities and devices. This is an obvious conflict of interest.

Most governments defer to guidance from the International Commission on Non-ionizing Radiation Protection (ICNIRP) or the World Health Organization, which also defers to the ICNIRP. The ICNIRP is not an environmental agency. It is self-appointed private organization with 14 members answerable to no one (cf. Buchner and Rivasi 2020). Its exposure guidelines are based on heating only, as though there were no other effects. In the United States, the agency that both regulates and promotes the telecommunications industry is the Federal Communications Commission (FCC). Like the ICNIRP, the FCC bases its exposure guidelines for humans on heating effects only, and completely ignores other harmful mechanisms of action as well as effects on the environment.

RF radiation should be regulated transparently within each nation by their own environmental agencies based on the totality of science. It should be addressed within the UN not by the World Health Organization, but by the United Nations Environment Programme, which presently does not address it at all. And it should be subject to an international treaty and a convention on Electrosmog.

F. An International Treaty or Convention on the phasing out of radiation-based wireless technology must be adopted by all nations.

G. Medical Schools need to incorporate education on EMFs into curriculums based on industry-independent research and respective classes should be required for continuing education.

The books and studies are there by the tens of thousands. They sit on the shelves of medical school libraries gathering dust and being ignored. All that is required is to organize them into the curriculum and the base of knowledge required of every physician in order to earn a medical degree.

H. Environmental organizations should form chapters on radiation-based wireless technology and the ecological effects of the Fourth Industrial Revolution.

The rapid declines in biodiversity and species populations cannot be successfully addressed without reducing electromagnetic pollution which is causing parts of the declines. That is why environmental organizations should make this subject area one focus of their work. Some of the means to study these problems, for example GPS and radio tracking of wildlife, should be changed as they can contribute to the issues at hand. All antennas must be removed from protected nature areas, wildlife preserves, and oceans. Radio tracking devices are harmful (cf. Godfrey and Bryant 2003; Mech and Barber 2002; Withey et al. 2001; Burrows et al. 1994; Burrows 1995; Swenson et al. 1999; Moorhouse and Macdonald 2005). They must be removed from all wildlife and not put on any more animals, birds, insects, or fish.

In addition, environmental organizations should look into the effects of the Fourth Industrial Revolution on the ecosystem and essential resources as a whole. The global digital industry uses so much water, raw materials and energy that its ecological footprint is three times larger than that of countries like France or Great Britain.

I. Public awareness about mental health and development issues connected with the extensive or false use of digital technology should be increased through targeted programs that also strengthen coping capabilities and anti-addictive behavior.

J. Legislation needs to be passed on a national and supranational level to ensure raw materials are mined and end products manufactured without subjecting people and the ecosystem to hazards while ensuring that local communities benefit from their own resources (fair trade).

K. The principle of subsidiarity must be enforced, decentralization of political-decision making must be pursued, the political rights of counties, cities, towns and communities need to be preserved.

L. The right to privacy or informational self-determination (depending on country) must be enforced as an essential human right and pillar of democracy. Educational measures should remind people of how essential privacy and informational self-determination are for a working republic and democracy.

M. Digital mining as well as control of private data needs to be criminalized through legislation. Legislative measures must ensure that people have ownership over their own data at all times and that terms set by private or state entities that violate this norm are prohibited. Data policy and terms of service that coerce people to provide their most private data to any corporation or government in exchange for participation in the digital public square must become illegal. Aggregation and selling of personal data must become illegal.

N. Any form of digital ID with a consolidation of all data relating to an individual at a single point of reference must be prohibited via adequate legislative measures. Such a single digital point of reference poses a significant risk to individual rights, data safety as well as national security and can be abused by anti-democratic actors and hostile entities.

O. Educational measures to explain the dangers of digital IDs should be initiated and implemented.

P. National and international organizations should commit to research on the following questions: Who owns and controls our data? Who is benefitting from trading in it? And why do we have no say over who gets it?

Q. The digital transformation hype should be rationally analyzed. Only that which is useful, sensible and not harmful should be pursued politically and economically. People should always be put over profits in the considerations.

Wireless smart meters are unnecessary. **Autonomous driving** is currently not feasible technologically on a broad scale; it is also unnecessary. It certainly does not justify the installation of a pervasive grid of microwave- and millimeter-wave emitting towers and antennas everywhere, including in residential areas. In a cost-benefit-analysis, the harms for humans, animals and the ecosystem as a whole far outweigh the benefits.

Smart homes are not necessary. However, if people wish to live in a smart home, it should be based on wired technology – as also recommended by most engineers and security experts.

The **Internet of Things**, meanwhile, is not desirable (although aspects of it could be implemented via wired technology). **Smart cities** are undesirable for a multitude of reasons. Kroll (2020: 32) writes: “The term *smart city*, in which everything and everyone is digitally connected and every citizen with all the data he or she produces is constantly being tracked, is just a euphemism for the total surveillance of citizens and the maximum exploitation of their data.”

An attempt by Alphabet (which owns Google) to build a smart city on an area in Toronto, Canada, failed and has been described by Jim Balsillie (the retired Chairman and co-CEO of Research In Motion/BlackBerry) as “a colonialist surveillance capitalism experiment” (FAZ 2020: 1). In fact, Alphabet attempted to take over and privatize parts of the governing and policy-making structure. Niklas Maak writes: “Alphabet wanted to invest a total of 1.3 billion dollars and founded a number of start-ups: for intelligent timber construction, for robotized household appliances and underground waste disposal, for health insurance whose tariffs would be based on user data, for the development of sensors. This is where the problems started. It quickly became clear that this was not just about using fewer resources and reconciling work and living – but also about ‘completely reinventing existing concepts of social policy and political leadership’ and, according to Sidewalk [the Alphabet company responsible for the project] boss Daniel L. Doctoroff, ‘testing data-driven management’ [technocracy as a replacement for democracy]. That was an astonishingly open declaration of war on the entity responsible for social policy: the state.” (FAZ 2020: 1) Alphabet even aimed for a right to get tax revenue. After the true extent of Alphabet’s plans became apparent, civil society resistance became so great that the attempt had to be stopped and Alphabet withdrew from the project.

IV. Personal Recommendations for the Reader

A. Use wired technology in your home, turn off wireless.

Wireless technology (Smartphones, tablets, DECT telephones, WLAN and GSM/UMTS/LTE/TETRA and the planned 5G) continuously expose people and the environment to pulsed microwave (and with 5G also millimeter) radiation. You cannot see this radiation. We strongly encourage you to buy a measuring device to make the radiation you and your family are subjected to in your home visible and hearable.

You are not dependent on wireless technology in your home. Exchanging wireless connections for wired ones will protect your, your family's and surrounding's health and make your communications faster, clearer and more secure as it is more difficult for unauthorized users to access them. You can build a smart home (if that is what you want to do) based on a wired network – an approach recommended by engineers today as wired systems consistently perform better than wireless systems. Wired systems also require less energy and don't need batteries to operate, profiting the environment and reducing running costs.

To make devices that you want to use available in different places of your home, you can get points for network and internet access installed which you can then connect to any device you use via cable while having wireless mechanisms turned off. You could probably start right now, for instance, by connecting your laptop to the internet via cable while turning off the WiFi.

B. Ask for wired solutions to be broadly implemented.

Wired solutions can and should be implemented in different venues of social life shared by many people as some individuals are more sensitive to radiation than others. People



do not have the right to excessively irradiate others against their wish when it might be harmful to these others.

Kindergardens, schools and workplaces should only use wired technology. Instead of offering WiFi, hotels, restaurants and similar venues should offer wired connection points for people to attach devices to. Instead of building an extensive, harmful, costly and exploitable 5G infrastructure, a more healthy, more stable and more secure wired infrastructure should be created wherever possible.

C. Be conscious of your habits and how they make you feel.

Use technology for constructive purposes, education, work, worldwide interactions (if in-person isn't possible). Don't use it for destructive causes, to gain recognition (temporary popularity is not the same as truth), to compare yourself to others or carefully presented highlights (you are unique and have a unique purpose) or to pass idle time (with algorithms deciding where your attention goes instead of you being in charge).

Limit your exposure to technology and turn devices off whenever you spend in-person time with family (including pets), friends or nature.

Carefully balance the time you spend in the digital world with the time spend in the natural world. The latter should always surpass the former as it is our natural habitat that provides us with that which our body, mind and soul really need. The digital world is an artificial construct that can entrap us if we do not interact with it in a conscious manner.

It is further important to keep young children away from any digital technology; they can only learn and grow in the natural world. When older, we need to teach them how to be resilient in the face of addictive technology, how to engage consciously with the digital world and avoid pitfalls.



D. Demand ethical practices and vote with your money.

As consumers, we drastically impact the world by what we spend our money on. If we buy products that are based on exploitation, we contribute to that exploitation. If we buy products that are ethical, we contribute to a more ethical world.

For the trillion-dollar digital industry, it would be easy to trace the exact origin of raw minerals used in technological devices, to assign them to specific mining areas or mines, to supply these with robots to do the digging while improving the lives of people living in these areas in exchange for their lands' resources being used. It would be possible to manufacture products in a fair manner. We need to demand fair trade practices that should not be an exception but the norm, hold corporations to account, ask questions, and put our money behind fair products while boycotting those based on exploitative practices.

E. Know and insist on rights that are essential to democracy.

A centralization and monopolization of political decision-making disempowers the local level (counties, cities, towns and communities). It disempowers you. The farther away, less reachable and more obscure decision-makers are, the less you can influence political decision-making that directly affects you, your family and neighborhood. That is why we need to oppose any kind of attempt (including legislation like bill H.R. 3557) that centralizes power. Instead, what we need right now is more decentralization based on the principle of subsidiarity.

In addition, we should never trade our privacy right for access to apps as privacy and informational self-determination are essential if we want to keep living in a republic and democracy. Big Tech corporations can only harvest private data – intruding into the private lives of billions of people, violating constitutionally protected human rights in the process – because governments are under no pressure to reign them in due to popular apathy. Instead, data illegitimately obtained is used by both governments and corporate stakeholders.

As Solomon (2018) puts it: “[W]e must advocate for the principles of data minimization, decentralization, consent, and limited access [to data] that reinforce our fundamental rights.” This also requires the prevention of digital ID and 5G, both of which are pillars of mass surveillance and constitute a significant threat to our fundamental rights.

V. Conclusion

We are contemporary witnesses to the accelerated implementation of the Fourth Industrial Revolution with central stakeholders aiming at the digital transformation of all areas of life and production. The digital transformation is an ideology and a hype. We need to pause and distance ourselves from it to be able to analyze it in a rational way.

While the digital transformation might have benefits when it comes to certain areas such as global connectivity, other aspects of it present a severe threat to human and animal health, the environment, human rights and democracy. Threats to health include the utilization of radiation-based wireless technology, the wrong and/or excessive usage of addictive digital technology as well as life-threatening raw material mining and end product manufacturing practices. Threats to democracy include but are not limited to the attempted monopolization of political decision-making, a move towards technocracy, the creation of a surveillance economy and the violation of essential privacy rights.

This document is a call to use technology with discernment. The personal and policy recommendations presented in this brief have their basis in science, and provide a path to the protection of human rights (including the human right to health), nature and democracy.

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